

## QE Learning Hours

Version: 1.0

Issue Date: 26/04/2016

### Document Version History

| Version | Status                   | BDS Approval Date | TDS Issue Date | Modified by | Description |
|---------|--------------------------|-------------------|----------------|-------------|-------------|
| 1.0     | Approved:<br>Recommended | 22/03/2016        | 26/04/2016     | ISB         | New TDS     |

## Contents

|          |  |          |
|----------|--|----------|
| <b>1</b> | <b><i>Data Standard</i></b>                            | <b>3</b> |
| 1.1      | Introduction   | 3        |
| 1.1.1    | Application  | 3        |
| 1.1.2    | Compatibility with non-ISB standards                   | 3        |
| <b>2</b> | <b><i>XSD</i></b>                                      | <b>4</b> |
| <b>3</b> | <b><i>XSD Normalisation</i></b>                        | <b>4</b> |
| 3.1      | Introduction   | 4        |
| 3.2      | Details of Normalisation specific to QE Learning Hours | 4        |
| <b>4</b> | <b><i>XSD Optimisation</i></b>                         | <b>5</b> |
| 4.1      | Introduction   | 5        |
| 4.2      | Details of Optimisation specific to QE Learning Hours  | 5        |
| <b>5</b> | <b><i>Changes from previous version</i></b>            | <b>7</b> |
| <b>6</b> | <b><i>References</i></b>                               | <b>7</b> |
| <b>7</b> | <b><i>Notes</i></b>                                    | <b>7</b> |
| <b>8</b> | <b><i>Copyright Notice</i></b>                         | <b>8</b> |

# 1 DATA STANDARD

## 1.1 Introduction

### 1.1.1 Application

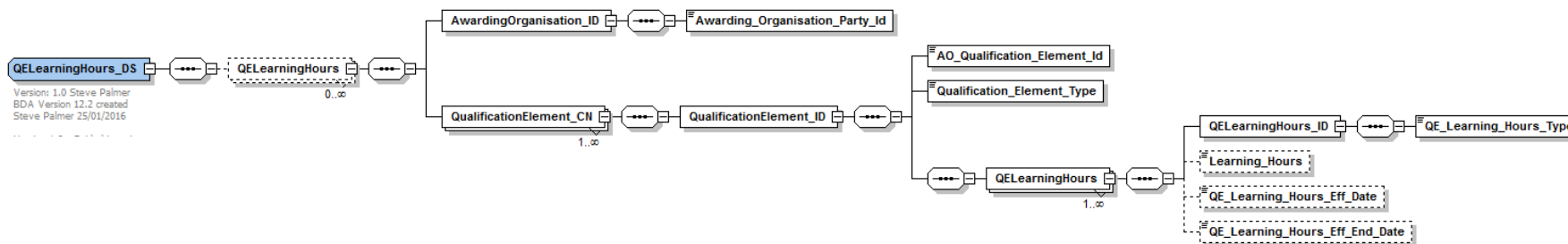
This Technical Data Standard (TDS) binds the QE Learning Hours Business Data Standard (BDS) to an XML Schema (XSD) representation.

This standard can be used to store or exchange data that identifies the various guided learning hours estimated for the QUALIFICATION ELEMENT.

### 1.1.2 Compatibility with non-ISB standards

There are no known compatibility issues related to this standard.

## 2 XSD



## 3 XSD NORMALISATION

### 3.1 Introduction

This section defines normalisation that has been applied. The Business Data Standard data model may contain multiple entities that inherit primary keys from a parent entity. In this situation the same primary keys will occur in multiple entities. If this pattern was translated directly to the xsd then the same primary key element(s) would be repeated within the xsd. When parsing the xml, if the element was referenced without xpath then the particular instance of the repeated primary key element could not be determined.

If all instances of the repeated primary key element(s) contained the same value then there would not be an issue. However, if there were different values in the repeated primary key element(s) then the value to be returned would be indeterminate. To prevent this situation the conversion from the Entity Relationship Diagram (ERD) model to the xsd involved normalisation to remove the repetition. This results in nodes being created in the xsd to define primary keys once and sub-nodes created that inherit those keys. This section will identify any normalisation that has taken place and how it has been implemented in the schema.

### 3.2 Details of Normalisation specific to QE Learning Hours

The QE Learning Hours model consists of 1 associate entity. Therefore, no normalisation is required.

|                                  |             |                               |                        |
|----------------------------------|-------------|-------------------------------|------------------------|
| File: TDS-QE-Learning-Hours-v1-0 | Page 4 of 8 | Version: 1.0                  | Issue Date: 26/04/2016 |
|                                  |             | Status: Approved: Recommended |                        |

## 4 XSD OPTIMISATION

### 4.1 Introduction

This section defines optimisation that has been applied to the xsd. The Business Data Standard data model may contain compound keys made up from a number of attributes. The sequence of the attributes in the Business Data Standard data model is defined to identify any opportunities for optimisation in encodings that can accommodate that capability.

An example is where the primary key contains the values of Party\_Id and then Event\_Id. This implies that a single Party\_Id may have many Event\_Ids. Encodings that can accommodate optimisation can define the Party\_Id once and then under that have many Event\_Ids. For xml encoding, a single Party\_Id element node can be defined with an unbounded list under that node for the Event\_Ids. This reduces the amount of data redundancy.

### 4.2 Details of Optimisation specific to QE Learning Hours

The QE Learning Hours structure is optimised by having a single top level key instance of

- Awarding\_Organisation\_Party\_Id under the QualificationElement node

The QE Learning Hours then adds the second level primary keys under the QualificationElement\_CN node of:

- AO\_Qualification\_Element\_Id
- Qualification\_Element\_Type

The QE Learning Hours then adds a third level primary key under the QELearningHours node of:

- QE\_Learning\_Hours\_Type

The above facilitates two levels of optimisation to be applied

When creating data for the QE Learning Hours primary keys there are two options available that both satisfy the xsd

- Option 1 – One Awarding\_Organisation\_Party\_Id with many AO\_Qualification\_Element\_Id/Qualification\_Element\_Type
- Option 2 – One Awarding\_Organisation\_Party\_Id with one instance of

|                                  |             |                               |                        |
|----------------------------------|-------------|-------------------------------|------------------------|
| File: TDS-QE-Learning-Hours-v1-0 | Page 5 of 8 | Version: 1.0                  | Issue Date: 26/04/2016 |
|                                  |             | Status: Approved: Recommended |                        |

### AO\_Qualification\_Element\_Id/Qualification\_Element\_Type

Option 1 utilises the optimisation as there will be one Awarding\_Organisation\_Party\_Id with all its AO\_Qualification\_Element\_Id/Qualification\_Element\_Type instances

Option 2 does not use the optimisation and repeats the Awarding\_Organisation\_Party\_Id against a single AO\_Qualification\_Element\_Id/Qualification\_Element\_Type instance.

Providing Option 1 is coded for in the application then either Option 1 or Option 2 can be supported. However, this is not true if only Option 2 is coded for as the program will not hold the Awarding\_Organisation\_Party\_Id in memory for use against each of its Qualification nodes.

The recommendation is always to code for the optimisation method Option 1.

The Option 1 optimisation method needs to be applied to the QE\_Learning\_Hours\_Type key that is optimised under the parent key of AO\_Qualification\_Element\_Id/Qualification\_Element\_Type.

|                                  |             |                               |                        |
|----------------------------------|-------------|-------------------------------|------------------------|
| File: TDS-QE-Learning-Hours-v1-0 | Page 6 of 8 | Version: 1.0                  | Issue Date: 26/04/2016 |
|                                  |             | Status: Approved: Recommended |                        |

## 5 CHANGES FROM PREVIOUS VERSION

New Technical Data Standard

## 6 REFERENCES

The following references are specific to this Technical Data Standard:

- ESCS ISB Consolidated XML (XSD) Schema, version 6.1 – QE Learning Hours Content Model Version 1.0
- ESCS ISB Business Data Architecture Entity Relationship Diagram, version 12.2
- ESCS ISB, Business Data Standard, QE Learning Hours

The following references apply to all Technical Data Standards:

- ESCS ISB Standards Overview and Context
- ESCS ISB “System“ Enterprise Architecture - Business Data Architecture
- ESCS ISB Business Data Architecture Data Types
- ESCS ISB BDA Data Architecture Modelling Standards
- ESCS ISB Management Process

## 7 NOTES

None.

|                                  |             |                               |                        |
|----------------------------------|-------------|-------------------------------|------------------------|
| File: TDS-QE-Learning-Hours-v1-0 | Page 7 of 8 | Version: 1.0                  | Issue Date: 26/04/2016 |
|                                  |             | Status: Approved: Recommended |                        |

## 8 COPYRIGHT NOTICE

© [Crown copyright 2016](#)

The Information Standards Board (ISB) is an advisory body to the Department for Education (DfE) and the Department for Business, Innovation and Skills (BIS). The information it produces is subject to Crown copyright, which is administered by the National Archives.

The Crown copyright protected information in this document (other than ISB or Departmental logos) may be reproduced free of charge in any format or medium under the terms of the Open Government Licence, available from the National Archives website.

Any reuse is subject to the material being reproduced accurately and not used in a misleading context. It must be acknowledged as being protected by Crown copyright and the title of the source material must be supplied with the ISB named as the corporate author.

Authorisation to reproduce any information which is identified as being the copyright of a third party must be obtained from the copyright holders concerned.

|                                  |             |                               |                        |
|----------------------------------|-------------|-------------------------------|------------------------|
| File: TDS-QE-Learning-Hours-v1-0 | Page 8 of 8 | Version: 1.0                  | Issue Date: 26/04/2016 |
|                                  |             | Status: Approved: Recommended |                        |